REMARKS

Applicant appreciates the time taken by the Examiner to review Applicant's present application. This application has been carefully reviewed in light of the Official Action dated July 6, 2005. This Reply encompasses a bona fide attempt to overcome the rejections raised by the Examiner and presents amendments as well as reasons why Applicant believes that the claimed invention is novel and unobvious over the applied prior art. Accordingly, Applicant respectfully requests reconsideration and favorable action in this case.

Claim status

Claims 1-18 were presented for examination. Claims 1-18 were rejected. Claim 1, 6 and 15-17 are amended herein. No claim is cancelled. Claim 19 is newly added. Support for the amendment can be found in the specification as originally disclosed, particularly on page 2, paragraph [0007]-[0008], and pages 6-16, paragraphs [0021]-[0095]. No new matter is introduced. By this Amendment, claims 1-19 are pending.

Specification

Per the Examiner's request, the specification disclosure has been checked for typographical errors. A misspelled word, "varible", was found in paragraph [0070]. The specification is amended herein to correct the misspelled word. No new matter is introduced. The specification disclosure was objected to because of certain acronyms (DASD, CD ROM, SQL, ARIMA). The specification is additionally amended herein to spell out these acronyms at their first occurrences. No new matter is introduced. Accordingly, withdrawal of this objection is respectfully requested.

Claim Objections

Claims 15-17 were objected to because, although they are directed to a data processing system readable medium, they were inadvertently written as being dependent upon claim 9, which is directed to a data processing system-implemented method. Claims 15-17 are amended herein to depend on claim 10, which is directed to a data processing system readable medium. Accordingly, withdrawal of this objection is respectfully requested.

Claim rejections under 35 U.S.C. § 101

Claims 1-9 were rejected under 35 U.S.C. § 101 as being directed to a non-statutory subject matter. Specifically, the Examiner deemed that independent claim 1 and its dependent claims 2-9 are directed to an abstract idea of modeling an operating parameter. Independent claim 1 in amended herein to clearly point out that the claimed process is performed by the data processing system recited in the preamble to produces a useful, concrete, and tangible result. Accordingly, withdrawal of this rejection is respectfully requested.

Claim rejections under 35 U.S.C. § 112

Claims 6 and 15 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner contended that the scope of claim 6 is unclear and should be clarified. Claim 15 was rejected for the same reasons. Claims 6 and 15 are amended herein to overcome this rejection. Accordingly, withdrawal of this rejection is respectfully requested.

Claim rejections under 35 U.S.C. § 103

Claims 1-18 were rejected as being unpatentable over Thierauf (*Decision Making Through Operations Research*). The rejection is respectfully traversed. Applicant notes that, other than claims 2, 3, and 4, claims 1 and 5-18 were not specifically rejected. Therefore, it is unclear how Thierauf applies to each and every claim limitation recited in claims 1 and 5-18.

37 C.F.R. § 1.104(c)(2) requires that "[i]n rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified."

According to MPEP § 2142, the initial burden is on the examiner to establish a *prima facie* case of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

According to MPEP § 2143, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that these three basic criteria have not been met and therefore a *prima facie* case of obviousness has not established under 35 U.S.C. § 103. In particular, Thierauf fails to teach or suggest all the claim limitations of claims 1-18. Accordingly, withdrawal of this rejection is respectfully requested.

Claim 1 as amended is reproduced below for the convenience of the Examiner:

> 1. A data processing system-implemented method of modeling an operating
> parameter for a store, comprising:
>> in the data processing system,
>> determining an effect of a first variable on quantities of a plurality of items
>>> sold by a vendor;
>> determining which of the plurality of items are significantly affected by the
>>> first variable;
>> generating a first matrix that includes first weighing factors, wherein:
>>> for each item that is more significantly affected by the first
>>>> variable, assigning a non-zero value to its corresponding
>>>> first weighing factor; and
>>> for all other items within the plurality of items that are less
>>>> significantly affected by the first variable, assigning values
>>>> of zero to their corresponding first weighing factors; and
>> calculating the operating parameter using the first matrix.

The rejection states, "[g]enerally, in Chapter 1, Thierauf discloses the process of modeling the operating parameters of a business using a computer because of the increased efficiency over manual modeling. In Chapter 11, Thierauf applies the modeling to inventory control which includes demand analysis using various techniques. In Appendix A, (page 609-620, at 609) Thierauf discloses the process of using matrix algebra to help solve linear programming problems in the operations research field of endeavor."

The Examiner's attention is respectfully directed to MPEP § 2141.02, which states, in part, "[d]istilling an invention down to the 'gist' or 'thrust' of an invention disregards the requirement of analyzing the subject matter 'as a whole.' *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984) (restricting consideration of the claims to a 10% per second rate of stretching of unsintered PTFE and disregarding other limitations resulted in treating claims as though they read differently than allowed); *Bausch & Lomb v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 447-49, 230 USPQ 416, 419-20 (Fed. Cir. 1986), *cert. denied*, 484 U.S. 823 (1987) (District court focused on the "concept of forming ridgeless depressions having smooth rounded edges using a laser beam to vaporize the material," but "disregarded express limitations that the product be an ophthalmic

lens formed of a transparent cross-linked polymer and that the laser marks be surrounded by a smooth surface of unsublimated polymer."). See also *Jones v. Hardy*, 727 F.2d 1524, 1530, 220 USPQ 1021, 1026 (Fed. Cir. 1984) ("treating the advantage as the invention disregards statutory requirement that the invention be viewed 'as a whole' "); *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1 USPQ2d 1593 (Fed. Cir.), *cert. denied*, 481 U.S. 1052 (1987) (district court improperly distilled claims down to a one word solution to a problem)."

In Chapter 1, "Operations Research – An Introduction," Thierauf provides an overview for various operations research (OR) models, including inventory models, that have been developed and applied to business problems [Ch. 1, p. 24]. Applicant cannot seem to find specific teaching in Chapter 1 of Thierauf that would correlate to all limitations recited in claims 1-18. If the grounds of rejection are to be maintained in the next Office Action, clear explanation as to how Chapter 1 of Thierauf applies to claims 1-18 is respectfully requested under 37 C.F.R. § 1.104(c)(2).

Chapter 11 of Thierauf specifically discusses an inventory model in terms of economic ordering quantity (EOQ) [Ch. 11, p. 347]. Thierauf teaches that EOQ is that size order which minimizes total annual cost of carrying inventory and cost of ordering, assuming conditions of certainty and known annual requirements [*id.*]. Thierauf further teaches that, since the EOQ model can be readily programmed, it appears convenient to keep all inventory items on-line within a computer system. However, Thierauf recognizes that it may not always be practical for a computer system to handle all of them [*id.* at p. 354]. Again, Applicant cannot seem to find specific teaching in Chapter 11 of Thierauf that would correlate to all limitations recited in claims 1-18. If the grounds of rejection are to be maintained in the next Office Action, clear explanation as to how Chapter 11 of Thierauf applies to claims 1-18 is respectfully requested under 37 C.F.R. § 1.104(c)(2).

In Appendix A, page 609-620, Thierauf discloses that matrix algebra is useful in solving a set of linear equations. It is unclear how Appendix A, page 609-620, of Thierauf applies to all limitations recited in claims 1-18. If the grounds of rejection are to be maintained in the next Office Action, clear explanation as to how Appendix A, page 609-620, of Thierauf applies to claims 1-18 is respectfully requested under 37 C.F.R. § 1.104(c)(2).

The rejection further states on page 5, first paragraph, that the "claims are limited only to the mathematical equations, nothing more, and as such are met by the Thierauf reference insofar as Thierauf discloses using matrices and mathematical processes to aid in decision-making." Applicant respectfully disagrees. The Examiner's attention is respectfully directed to MPEP § 2106(II), which states, in part,

"Office personnel must begin examination by determining what, precisely, the applicant has invented and is seeking to patent, and how the claims relate to and define that invention. (As the courts have repeatedly reminded the Office: "The goal is to answer the question 'What did applicants invent?' " *In re Abele*, 684 F.2d 902, 907, 214 USPQ 682, 687. Accord, e.g., *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053, 1059, 22 USPQ2d 1033, 1038 (Fed. Cir. 1992).) Consequently, Office personnel will no longer begin examination by determining if a claim recites a "mathematical algorithm." Rather they will review the complete specification, including the detailed description of the invention, any specific embodiments that have been disclosed, the claims and any specific, substantial, and credible utilities that have been asserted for the invention."

"It is of course true that a modern digital computer manipulates data, usually in binary form, by performing mathematical operations, such as addition, subtraction, multiplication, division, or bit shifting, on the data. But this is only how the computer does what it does. Of importance is the significance of the data and their manipulation in the real world, i.e., what the computer is doing." *Arrhythmia*, 958 F.2d at 1057, 22 USPQ at 1036, *see also* MPEP § 2106(II)(B). Furthermore, "Office personnel are to

correlate each claim limitation to all portions of the disclosure that describe the claim limitation. This is to be done in all cases." MPEP § 2106(II)(C).

As an example, what the computer in claim 1 (a data processing system) is doing is

"determining an effect of a first variable on quantities of a plurality of items sold

by a vendor to determine which of the plurality of items are significantly

affected by the first variable;

generating a first matrix that includes first weighing factors, wherein:

for each item that is more significantly affected by the first variable, assigning a

non-zero value to its corresponding first weighing factor; and

for all other items within the plurality of items that are less significantly affected

by the first variable, assigning values of zero to their corresponding first

weighing factors; and

calculating the operating parameter using the first matrix."

In other words, the data processing system recited in claim 1 manipulates and transforms data through a series of mathematical calculations into an operating parameter. Accordingly, claim 1 and, similarly, claims 2-18, are not whatsoever "limited only to the mathematical equations, nothing more." Moreover, manipulating and transforming data through a series of mathematical calculations into an operating parameter constitute a practical application of the mathematical calculations because it produces a useful, concrete and tangible result – the operating parameter. This useful, concrete and tangible result, and the method steps involved in achieving the result, are not taught or suggested in Thierauf. As such, claims 1-18 are not met by Thierauf even if Thierauf discloses using matrices and mathematical processes to aid in decision-making.

The two Official notices taken by the Examiner on page 5 of the Office action are acknowledged. The first Official notice is taken that "the decision as to what variables of an operation are analyzed is within the level of ordinary skill in the operations research

field of endeavor and that analysis of a particular variable is dependent upon the goal of the operation, including the company as a whole, and the desired outcome of the analysis whether it is determining areas within an operation that need improvement or determining areas that achieve maximization of operation goals." The pertinence of this Office notice to claims 1-18 is unclear because it does not seem to apply to any particular claim or claim limitation. Clarification is respectfully requested.

With reference to claim 10-18, the second Official notice is taken that "the use of readable media having code embodied thereon is common in the computer art. Thus, storing information and instructions on a readable medium would have been obvious in order to perform the mathematical calculations on a computer or data processing system." Claim 10 is reproduced below for the convenience of the Examiner:

> 10.   A data processing system readable medium having code embodied therein, the code including instructions executable by a data processing system, wherein the instructions are configured to cause the data processing system to :
>   determining an effect of a first variable on quantities of a plurality of items sold by a vendor to determine which of the plurality of items are significantly affected by the first variable;
>   generating a matrix that includes first weighing factors, wherein:
>   for each item that is more significantly affected by the first variable, assigning a non-zero value to its corresponding first weighing factor; and
>   for all other items within the plurality of items that are less significantly affected by the first variable, assigning values of zero to their corresponding first weighing factors; and
>   calculating the operating parameter using the first matrix.

The alleged claim limitation "storing information and instructions on a readable medium" is not recited in claim 10 or its dependent claims 11-18. Therefore, the second Official notice does not appear to be applicable to claims 10-18. Clarification is respectfully requested.

With reference to claims 2, 3, and 4, the Examiner further contended on page 5 of the Office Action that "[t]he particular categorization (claim 2) is within the level of ordinary skill in the operations research art," that "the application of a matrix analysis to any variable including price change and something other than price change (claim 3) is within the purview of a data analyst in the business field," and that "[t]he weight of a variable in an operations research matrix analysis (claim 4) is a decision made by one of ordinary skill in the operations research art." It would seem that each claim was distilled down to a one word solution to a problem, disregarding claim limitations particularly recited therein. Clear explanation as to how Thierauf applies to each and every claim limitation recited in claims 2, 3, and 4 is respectfully requested under 37 C.F.R. § 1.104(c)(2).

Thierauf explicitly teaches that it may not always be practical even for a computer system (let along human beings) to handle all of the inventory items on-line, *supra*. Thierauf's teaching seems to support paragraphs [0005]-[0006] of the specification as originally disclosed. That is, at the time the invention was made, there was a long-felt but unsolved need to deal with product interactions in a comprehensive, automated, computationally fast and efficient manner. Applicant respectfully submits that embodiments of the claimed invention fulfill this long felt need, i.e., utilizing the steps recited in claims 1-18 can reduce the computational time and resources required to build the model and allow the underlying computer system to operate on a large amount of data in a reasonable amount of time. The newly added claim 19 further exemplifies another useful embodiment of the invention.

Conclusion

In view of the foregoing, Applicant respectfully submits that claims 1-19 recite subject matter not reached by the applied prior art of record, Thierauf, and therefore are patentable under 35 U.S.C. § 103. By the amendments and remarks submitted above,

Applicant has now made an earnest attempt to place the present application in condition for allowance. Other than as explicitly set forth above, this reply does not include any acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, favorable consideration and a Notice of Allowance of all pending claims 1-19 is earnestly solicited. The Examiner is invited to telephone the undersigned at the number listed below for discussing an Examiner's Amendment or any suggested actions for accelerating prosecution and moving the present application to allowance.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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